



# Fact Sheet

US Army Engineer  
Research and Development Center  
Waterways Experiment Station

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## Expedient Road Construction Using Sand-Fiber Stabilization

**Purpose:** To provide information on military road construction using sand-fiber stabilization technology.

**Background:** Road construction using sand-fiber stabilization technology involves mixing small amounts (0.8 percent by weight) of hair-like 5-cm-long (2-in.) polypropylene fibers into moist sand using a self-propelled rotary mixer. The sand-fiber layer is compacted with a smooth drum vibratory roller. A wearing surface is added by spraying a resin-modified emulsion (trade name Road Oyl) or emulsified asphalt onto the road surface. Military supply roads over-the-beach or across desert sands can be quickly constructed at remote sites using reduced equipment, manpower, and materials. Experiments conducted at WES indicate that roads constructed using this new technology will carry over 10,000 passes of heavy military supply traffic with very little or no maintenance required. Sand-fiber stabilization uses existing military construction equipment and requires no special construction skills. Sand-fiber stabilization is applicable for a wide variety of sands and silty sands found around the world (sands classified as SW, SP, SM, and some SM-SC types).



**Facts:** The US Army Engineer Waterways Experiment Station (WES) is fully equipped and staffed to develop new expedient pavement construction technologies for any region of the world. Examples of improved construction guidance for roads over wet soils include work with Uni-Mat (interlocking wooden mat panels), geotextiles, and geogrids. Improved construction methods for pavements over beach or desert sands have included sand-grid (geocell) confinement, new expedient matting systems, and the newly developed sand-fiber stabilization technology.

**Point of Contact:** For technical assistance regarding sand-fiber stabilization or other expedient pavement construction techniques, contact Steve Webster / Jeb Tingle at (601) 634-2282 / 2467 or e-mail at [webstes@wes.army.mil](mailto:webstes@wes.army.mil) / [tinglej1@wes.army.mil](mailto:tinglej1@wes.army.mil). General information on WES is available on the web site at <http://www.wes.army.mil>.